



Fall 2016 Mobile HHW Analysis Season Report



(This Page Intentionally Left Blank)

Overview

Since the program's inception in 1993, the Tennessee Department of Environment and Conservation (TDEC) continues to provide the Tennessee Household Hazardous Waste Mobile Collection Event services to counties to aid in the management of household hazardous wastes (HHW). Regulations for HHW are found in Tennessee Code Annotated [Title 68 chapter 211](#). To date, there have been over 1,000 one-day collection events with over 335,000 Tennessee families safely disposing over 22 million pounds of HHW.

HHW is any unwanted or spent (used) household product that can catch fire easily (flammable), eat away at or irritate living tissue (corrosive, both acid and base), react violently with water or other chemicals (reactive), or is poisonous to humans or animals (toxic). Usable household products may exhibit hazardous properties but until they become a waste they are not appropriate for the HHW program.

The Mobile Collection Service is open to any Tennessee resident and is limited to households. Businesses, institutions, schools, and agri-business operations may not use this service, but can participate as a Conditionally Exempt Small Quantity Generator (CESQG) which can assist with reduced mobilization fees for proper business waste disposal.

Counties request mobile HHW events using a tiered priority listing provided by TDEC. As the county requests are submitted, the schedule is set trying to maximize access of the majority of the citizens. Higher populated counties generally have greater participation and may have more than one event per year.

Season Participation Analysis

The 2016 Fall HHW (September 10th - November 5th) event season ended with 26 counties hosting 2,961 households showing a 7% increase from the previous year (see table 4) evaluated using same county participation. Two counties did not have a comparable time frame for household analysis. An additional event had been scheduled at Chester County, but due to a fire at the county recycle center, the event was cancelled for the safety of staff and participants.

Batteries, Oil, Paint, Electronics and Antifreeze (BOPAE) continue to be a focus through the year. 16 oil based paint and three fluorescent lamp milk runs were conducted in the Fall 2016. The frequency and convenience of BOPAE collections provides added service for the citizens and spreads the work load for the collection sites. TDEC provides paint job aids that can assist counties to identify oil paint that needs to be collected and tips for identifying latex and water based paint that can be solidified and managed in the solid waste stream. Additional methods for managing discarded fire extinguishers were shared with counties to assist with year round management of these materials and to reduce the cost associated with disposal.

The season concluded with a total of 153,750 lbs. of discarded household hazardous waste that was collected in the combined 49 events. Mobile events and milk runs, oil based paint, and fluorescent bulbs are collected at county facilities through the year and then picked up by a contractor for proper disposal which resulted in a total cost of \$196,579.66.

Summary of mobile HHW materials collected (Additional Data in Tables 1-3)

- Corrosives acids (Sulfuric acid, phosphoric acid, CLR cleaner, muriatic acid, battery acid); 2,954 pounds
- Corrosive Bases (Drano, sodium hydroxide); 3,537 pounds
- Pesticides, herbicides, rat poisons, insecticides, animal medications; 21,172 pounds
- Flammables, gasoline, charcoal lighter, kerosene, paint thinners; 15,939 pounds
- Aerosols, paint, ,health & beauty aids, insecticides, lubricants, cleaners; 5,854 pounds
- Mercury; 36 pounds
- Oxidizers, bleach, chlorine, pool sanitizers; spa and hot tub sanitizers; 906 pounds

Advertising

The Materials Management Program requires advertising and information sharing. The program created informational handouts to supplement standard stakeholder advertising requirements. Participants received information as a take away that had contact information for the TDEC website. As an outreach to the counties, recommendations for advertising and promoting the events were shared to help maximize communication opportunities in the served areas. [Green Cleaning Products](#) were researched and a handout was developed to provide additional resources to participants and additional copies were made available for distribution. Methods to manage used oil were summarized in handout material and distributed to participants as consistent reminders of protecting and preserving our environment with particular emphasis on valued drinking water sources.

Efforts to add additional value to the HHW collection event included on site information about [Radon](#) as an information sharing event with the Office of Sustainable Practices. Drug take back programs were coordinated by some counties for increasing the take back of the products and the awareness of the hazards of pharmaceuticals that are in households. Additional events associated with HHW collection events at some counties included paper shredding and electronics collections.

Safety

TDEC Materials Management section considers safety the highest priority for state, county, volunteer staff and participants. The TDEC event oversight staffs prioritize safety by wearing high visibility safety vests, making first aid kits available and providing additional event resource materials that encourage site safety. Many event staff workers have received CPR and AED training with a goal for all staff to be prepared for unexpected situations that may occur at mobile events. Clean Harbors, the event contractor, provides an onsite chemist and additional staffing who assists with the proper segregation of chemicals and Department of Transportation (DOT) requirements for safe transportation.

As household materials are developed and continue to provide problems for disposal or safe management, TDEC searches for consumer solutions. Sharps, needles, lancets and auto inject pens have challenged the safe disposal options and were added to the options at HHW events. As these materials are removed from the solid waste stream, the safety of solid waste staff, haulers, landfill staff and maintenance staff is greatly increased. HHW participants have received this added benefit and are very appreciative of this additional option.

The future for HHW events looks bright as the program reaches out to the public schools across the state for identification and proper management of materials and chemicals that may be in science, chemistry, biology and engineering labs, maintenance and janitorial areas, automotive, wood, metal, agricultural and cosmetology trade education areas. The school programs are being leveraged with distressed areas to provide increased services and benefits that may be caused by geography or other factors that may limit convenient access.

TDEC staff will schedule the upcoming year schedule by mid-January 2017 and post the mobile event schedule at <http://tn.gov/environment/article/sw-mm-household-hazardous-waste-collection-event-schedule> .

Individual Counties-Participation-Hazard Classes- Table 1 of 3 (Weight in pounds)

Event Date	County	Participation	Event Cost	Cost/HH	Cost/lb	Participation Rate
9/10/2016	Hickman	27	\$1,369.31	\$50.72	\$5.71	0.28%
9/10/2016	Maury	108	\$8,099.20	\$74.99	\$2.50	0.35%
9/10/2016	Overton	14	\$1,358.33	\$97.02	\$3.03	0.17%
9/17/2016	Anderson	181	\$13,227.92	\$73.08	\$2.41	0.62%
9/17/2016	Dickson	66	\$3,049.72	\$46.21	\$1.26	0.36%
9/17/2016	Lawrence	22	\$1,782.42	\$81.02	\$2.84	0.13%
9/17/2016	Montgomery	333	\$17,027.68	\$51.13	\$2.04	0.57%
9/24/2016	Macon	18	\$1,066.81	\$59.27	\$1.69	0.21%
9/24/2016	Marshall	84	\$5,431.97	\$64.67	\$2.59	0.74%
9/24/2016	Putnam	192	\$12,517.61	\$65.20	\$2.22	0.72%
10/1/2016	Marion	32	\$1,698.70	\$53.08	\$1.76	0.29%
10/1/2016	McMinn	65	\$2,562.82	\$39.43	\$2.85	0.32%
10/1/2016	Wilson	289	\$18,725.28	\$64.79	\$1.87	0.72%
10/8/2016	Greene	58	\$3,784.82	\$65.26	\$2.34	0.22%
10/15/2016	Jefferson	61	\$4,282.81	\$70.21	\$2.31	0.32%
10/15/2016	McNairy	35	\$1,710.97	\$48.88	\$2.90	0.35%
10/15/2016	Trousdale	35	\$2,664.32	\$76.12	\$1.44	1.14%
10/22/2016	Cumberland	169	\$9,176.60	\$54.30	\$1.97	0.82%
10/22/2016	Henderson	47	\$1,298.11	\$27.62	\$2.75	0.44%
10/22/2016	Loudon	106	\$7,829.99	\$73.87	\$2.67	0.61%
10/29/2016	Carter	83	\$4,331.02	\$52.18	\$1.54	0.35%
10/29/2016	Madison	254	\$8,716.30	\$34.32	\$2.28	0.67%
10/29/2016	Sumner	287	\$21,441.08	\$74.71	\$1.68	0.49%
11/5/2016	Giles	182	\$3,151.33	\$17.32	\$2.35	1.55%
11/5/2016	Pickett	12	\$2,103.97	\$175.33	\$1.68	0.62%
11/5/2016	Rutherford	201	\$17,778.23	\$88.45	\$2.18	0.23%
	Season Totals	2961	\$176,187.32	\$64.58	Average \$2.34	Average 0.51%

Individual Counties-Participation-Hazard Classes Table 2 of 3 (Weights in pounds)

County	Flammable Liquids	Poisonous Material	Acid	Oxidizers	Caustics	React ives	Mercury	Fluorescent Lamps
Hickman	39	126	28		5	0	12	4
Maury	294	809	195	9	362	0	2	11
Overton	117	161	101		1	0	0	
Anderson	924	1405	310	110	345	0	1	85
Dickson	749	236	27	4	60	0	0	22
Lawrence	61	161	38		41	0	6	5
Montgomery	1625	2305	298	12	376	0	2	140
Macon	442	103	20	9	45	0	0	1
Marshall	749	764	81	94	117	0	1	50
Putnam	574	1488	176	121	246	0	0	325
Marion	313	150	14	28	23	9	0	13
McMinn	183	319	40	95	14	0	0	69
Wilson	985	2092	203	103	492	1	1	231
Greene	555	527	119		57	1	0	63
Jefferson	349	564	74	29	117	0	0	1
McNairy		303	19	3	16	0	0	
Trousdale	227	123	41		63	0	0	2
Cumberland	628	919	132	35	159	3	7	82
Henderson	70	208	11	8	16	0	1	25
Loudon	534	1038	193	17	169	0	0	9
Carter	1315	350	72	28	89	0	1	133
Madison	990	1150	142		176	0	0	201
Sumner	1797	2649	327	70	245	244	1	41
Giles	333	407	83		45	4	0	89
Pickett	286	120	38	69	23	0	0	1
Rutherford	1800	2695	172	62	235	18	1	200
Season Totals	15939	21172	2954	906	3537	280	36	1803

Individual Counties-Participation-Hazard Classes Table 2 of 3 (Weights in pounds)

County	Non Flam Liquid	Oil Paint	Used Oil	Aerosols	Dry Cell Batteries	Fire Extinguishers	Sharps	Total
Hickman				26				240
Maury	800	512		243				3237
Overton		24		45				449
Anderson	841	1051		404			22	5498
Dickson		725	455	129			9	2416
Lawrence	159	80		76				627
Montgomery	986	2004		422			185	8355
Macon				12				632
Marshall		79		133			33	2101
Putnam	1022	1379		281			24	5636
Marion		389		25				964
McMinn	98			62			20	900
Wilson	1745	1951	1604	595			25	10028
Greene		153		104			39	1618
Jefferson		584		116			20	1854
McNairy	141			23	61		23	589
Trousdale		1287		94	17			1854
Cumberland	381	1862		429			15	4652
Henderson	50			72			11	472
Loudon	437			522			11	2930
Carter		684		144				2816
Madison	449	108		540			69	3825
Sumner	1837	3179	1816	518		65	4	12793
Giles	213			167				1341
Pickett		686		27				1250
Rutherford	1197	1123		645			15	8163
Season Totals	10356	17860	3875	5854	78	65	525	####

HHW County Comparison (Table 4)			
County	Fall 2016	Fall 2015	Fall 15/16
Hickman	27	25	8%
Maury	108	226	-52%
Overton	14	22	-36%
Anderson	181	114	59%
Dickson	66	83	-20%
Lawrence	22	44	-50%
Montgomery	333	265	26%
Macon	18	6	200%
Marshall	84	53	58%
Putnam	192	99	94%
Marion	32	29	10%
McMinn	65	98	-34%
Wilson	289	340	-15%
Greene	58	57	2%
Jefferson	61	65	-6%
McNairy	35	35	0%
Trousdale	35	n/a	n/a
Cumberland	169	360	-53%
Henderson	47	52	-10%
Loudon	106	89	19%
Carter	83	82	1%
Madison	254	195	30%
Sumner	287	173	66%
Giles	182	233	-22%
Pickett	12	n/a	n/a
Rutherford	201	221	-9%
Households	2961	2966	

The 2016 Fall HHW event season ended with 26 counties hosting 2,961 households showing a 7% increase from the previous year evaluated using same county participation. Two counties did not have a comparable time frame for household analysis